UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

CINCINNATI, OHIO 45268

Technical Support Division
Office of Drinking Water
OFFICE OF WATER
5555 Ridge Road, Cincinnati, Ohio 45268

Date: October 29, 1981

Subject: PAH Treatment

From: R. Kent Sorrell, Chemist
Drinking Water Quality Assessment Branch

To: Michael Kosakowski
Office of Waste Program Enforcement (EN-335)

In response to your letter of August 24, 1981, I have reviewed the comments of Mr. E. J. Schwartzbauer. His statement that conventional treatment (ie flocculation, clarification and chlorination) is capable of reducing PAH concentrations substantially .... is true, but the key word is "capable" and in his advocacy Mr. Schwartzbauer overlooked some points in the review paper. For example, the portion of the paper describing treatment and removal of PAHs, presented mostly data from surface waters not ground waters. These surface waters, such as rivers, generally contain significant amounts of suspended material (particulates). The PAHs in these waters are associated with the particulate matter. As stated in the review "effective removal of PAHs from raw water appears to be closely related to particulate removal and thus, conventional water practices are generally quite effective."[1] By contrast, ground waters typically contain little suspended matter[1] and low concentrations of PAHs. The latter is illustrated by the low PAH concentration ($\lesssim$10 ng/l) in the United States ground water reported in the review paper. In addition, the effectiveness of conventional treatment will probably be influenced by the organic loading of the water. To date, I am not familiar with any pilot or full scale studies investigating the removal of high concentration of PAHs from United States ground waters via clarification, filtration or softening treatments. In the absence of this type of data, it is difficult to predict what the efficiencies might be.

Finally, in his letter, Mr. Schwartzbauer states that in some cases conventional treatment is more effective than activated carbon. The comparison in the review paper, however, wasn't of conventional treatment alone versus GAC treatment alone, but of conventional treatment alone versus conventional treatment followed by GAC filtration. The point being made was that GAC treatment is not always appropriate for removal of PAHs at low concentrations.

I hope you find my comments useful.

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1. U. P. Gibson and R. D. Singer, Water Well Manual, 1971, Premier Press, Berkeley, California

3 Enclosure

cc: H. J.Brass
L. A. Van Den Berg
H. Hanson
J. Cotruvo
V. J. Kimm

ONMENTAL PROTECTION AGENCY
INGTON, D.C. 20460

AUG 24 1981

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

MEMORANDUM

SUBJECT: PAH Treatment 382-318

FROM: Michael Kosakowski, Office of Waste Programs Enforcement, (WH-527/M) MWK

TO: R. Kent Sorrell, ORD

In following up on our conversation attached is a copy of a letter sent by the attorney representing Reilly Tar. In it, it is claimed that conventional water treatment removes polynuclear aromatic hydrocarbons. I believe that this is a misrepresentation of the literature review that you did in that St. Louis park receives its water supply from ground water whose TSS content is below 1/mg/l.

I would appreciate your comment on this matter. After your review I would like to arrange for an affidavit.

When was the attached report (cover only attached) published?

cc: R. Emory
E. Dolgin (DOJ)
R. Leininger (Region 5)

RECEIVED Sept 9, 1981

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March 10, 1981

Thomas Berg, Esq.
United States Attorney
234 United States Courthouse
Minneapolis, Minnesota 55401

Re: United States of America v.
Reilly Tar & Chemical Corporation

Dear Tom:

In case you have not seen it, I am enclosing for your information a paper entitled "A Review of Occurrences and Treatment of Polynuclear Aromatic Hydrocarbons" published by the Environmental Protection Agency, Office of Drinking Water, Technical Support Division, Cincinnati, Ohio. As indicated at several points in the paper, conventional water treatment, such as that already in place in St. Louis Park, is capable of reducing PAH concentrations substantially below the World Health Organization standards. Page 105224, in fact, shows that in some cases, conventional treatment is more effective than activated carbon. These were among the major points made by Dr. McMichael at our October 9 meeting. It is extremely disappointing to learn that these points apparently were missed.

We continue to be bewildered by the apparent insistence by the governmental agencies involved in this matter that it is necessary to require extensive studies on such subjects as new treatment systems and barrier wells. To the best of our knowledge, no one has yet tested the finished water in St. Louis Park to determine whether existing treatment facilities effect the desired removal of PAH's.

Yours very truly,

Edward J. Schwartzbauer

EJS:ml
Enclosure

A REVIEW OF OCCURRENCES AND TREATMENT OF POLYNUCLEAR AROMATIC HYDROCARBONS

R. Kent Sorrell — 634-4372
Herbert J. Brass
Richard Reding

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